

HAWAIIAN FERNS COLLECTED BY J. F. ROCK

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Through the courtesy of Mr. J. F. Rock of the College of Hawaii, I have recently had an opportunity to study the ferns of the College of Hawaii herbarium, and have found among them the following apparently undescribed species. In some groups, especially *Polypodium*, this collection is notably richer than Faurie's,¹ while in other, such as *Asplenium*, it is not so complete. All the specimens here described were collected by Mr. Rock.

ATHYRIUM PSEUDOARBOREUM sp. nov.

Asplenium arboreum Hilleb. non Willd. quid *Athyrium arboreum* Milde.

A. arboreo (Willd.) Milde similis, sed paleis brunneis latioribus prope baseos stipitum, soris longis marginem fere attingentibus, et indusiis latis versus margines suas albidis distinctum, et propter eas indicationes versimiliter phylogenetice diversum.

Lanai, Mahana Valley, in shady, damp places, altitude 770 meters. *Rock 8081.*

There is no question that this is the *Asplenium arboreum* of Hillebrand, page 609, who modified the description, as regards the sori, to fit this fern. But much as the two are superficially alike, *Asplenium arboreum* is a clear-cut member of an American group of species, while *Athyrium pseudoarboreum* represents the Oriental group of *Athyrium japonicum*. *Athyrium kaalaanum* Copel.² is also one of this group, but I do not believe it is a juvenile or reduced form of *Athyrium pseudoarboreum*; it has fleshy stipes, a long apex, obtuse pinnae, and short sori. Except for acuminate pinnae and the absence of a gemma, *Athyrium pseudoarboreum* fits Presl's diagnosis of *Diplazium sandwichense*, and I would be tempted to use this name if *Asplenium sandwichianum* were not already in use.

SADLERIA RIGIDA sp. nov.

Caudice ignoto; stipitibus ca. 15 cm longis, validis, ubique densissime paleatis; paleis linearibus, rigidulis, crinitis, rufocastaneis costa spuria castanea, infimis 3 cm longis pallidioribus, sursum usque ad rachides secundarias etenim ad costulas decrescentibus, ibidem costa carentibus; fronde elliptica vel ovata, ca. 33 cm longa, 20-25 cm lata, abrupte acuminata, rhachi dense

¹ Philip. Journ. Sci. 9 (1914) Bot. 435.

² Op. cit. 438.

vestita castanea; pinnis medialibus maximis, 13 cm longis, 2 cm latis, imbricatis, acuminatis; segmentis infimis liberis adnatis, aliis anguste confluentibus, 3-4 mm latis, plerumque ob margines involutas angustis, obtusis, integris, rigide coriaceis, superne pilis inferne pilis et paleis angustis fere hyalinis sparse pubescentibus; venis immersis, nigris, trans sorum plerumque simplicibus; soris apices segmentorum fere attingentibus, linearibus, indusiis atrocastaneis.

Kauai, near summit swamp of Waialeale, altitude 1550 meters, legit Rock. September, 1909.

This may be the *Sadleria pallida* of Hillebrand and of Christensen's Index, but not *S. pallida* H. & A., of which Hooker³ says, "It is clearly a trifling variety" (of *S. cyatheoides*), and the Synopsis (p. 18) reads "The original *S. pallida*, H. & A., is a mere form with a paler rachis." Compared with Hillebrand's description, this plant differs in being very dark green above, with veins not prominent though somewhat conspicuous, and sori long and narrow.

Beside a number of specimens from Kauai, Rock sends one from the Haalelepakai Ridge, Lanai.

PTERIS HILLEBRANDII sp. nov.

Eupteris adspectu hybridis *P. creticae* et *P. irregularis*; caudice et basi stipitis paleis atrocastaneis nitidis linearibus dense vestito; stipite 30-50 cm alto, stramineo vel castaneo, nitido; fronde 25-40 cm alta, deltoidea; pinnis infimis maximis, stipitatis, ad alam angustam in segmenta pauca linearia deorsum integra apicibus serrulatis pinnatifidis, segmento basiscopico basale solummodo deorsum pinnatisecta lobis paucis; pinnis sequentibus adnatis, 1- vel 2-paribus, suboppositis, paucilobatis; rhachi super pinnae descriptas alata, segmentis superioribus frondis paucis falcatis anguste linearibus, segmento apicale ad basin paucilobata, sursum integra (cauda serrulata excepta), anguste lineare.

Kauai, forests of Kaholuamano above Waimea, in semi-wet region; Rock 5984, 5983.

This is *Pteris irregularis* Kaulf. var. *linearis* Hillebrand.⁴ Hillebrand's varietal name cannot be used specifically, but the plant is very distinct. *Pteris irregularis* is indeed a very variable fern, as Hooker⁵ notes; but even in the simplest forms it shows no tendency, in the many specimens available for study, toward the very long, entire segments of *Pteris Hillebrandii*. In appearance the latter suggests *Pteris heteromorpha* Fée, a smaller fern, even less divided, with finer paleae. Agardh⁶ makes a similar observation regarding *Pteris irregularis* and *P. semipinnata* L.

³ Sp. Fil. 3: 66.

⁴ Flora Hawaii 628, from E. Maui.

⁵ Species Filicum 2: 173.

⁶ Recensio, 19.

ELAPHOGLOSSUM ROCKII sp. nov.

Species gregis *E. gorgonei*, rhizomate fere 1 cm crasso, cum stipitibus brevissimis et basibus costarum paleis castaneo-ferrugineis anguste linearibus valde crinitis 10-30 mm longis densissime obtectis; fronde 25-40 cm alta, oblanceolata, breviter acuminata, deorsum usque ad basin abrupte truncatam sensim angustata, minute et sparse squamulosa, papyracea (sicca); fronde fertile paullo angustiore, aliter conforme.

Koolau Mountain, Punaluu, *Rock 259, 214.*

This differs from *Elaphoglossum crassicaule* Copel.⁷ in its dense mass of brownish paleae, less stout stipe, and less horizontal venation.

Rock's Nos. 212, 215, and 244 differ in having dark chestnut paleae and fronds gradually narrowed below. They may represent still another species; but as more complete collection in the locality where all these were found may close the gap between them, they may stand for the present as varying forms of one kind.

Of *Elaphoglossum Fauriei*, Rock has collected several specimens, all from Molokai.

ELAPHOGLOSSUM HIRTUM (Sw.) C. Chr.

This species is more variable than any description indicates. At one extreme are the most densely scaly plants, with ferruginous rhizomatal paleae, with their tips darker but by no means black. Other very scaly plants have these tips practically black, as described by Hillebrand. At the other extreme are some sparsely scaly plants from Koolau Mountain, Punaluu, with slender stipes and the paleae of the rhizome black throughout. Complete collections would very likely reveal an entire series of intermediate forms. The paleae of the upper surface of the frond are usually paler than those of the nether surface, and this difference sometimes goes so far that the former are clear-white and shining.

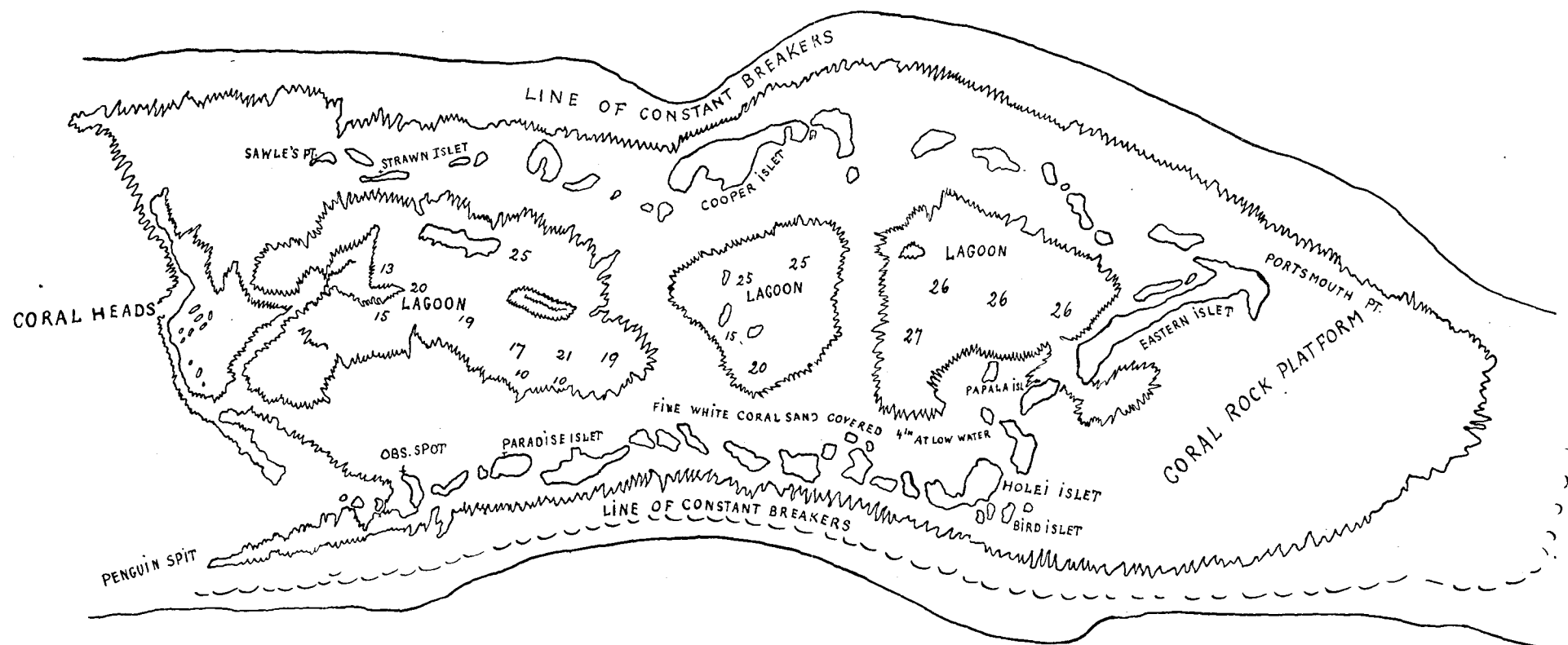
POLYPODIUM ROCKII sp. nov.

P. adenophorum, *P. sarmentoso* affine, stipitibus gracillimus 2-4 cm altis, segmentis remotis decurrentibus linearibus integris, venis costis subparallelis, soris paucis.

Koolau Mountain, Punaluu, *Rock 272.*

Mr. Maxon, of the United States National Museum, has been kind enough to send me photographs of Brackenridge's plate of *Polypodium sarmentosum* and of the type sheet in the National Herbarium, the latter bearing two plants both of which are accurately reproduced on the plate. Of these two, the larger, regarded by Mr. Maxon as the type plant, collected on the mountains back of Honolulu, is surely a freak plant; different as the two appear, they may well represent one species. This is represented by 7074 of the College of Hawaii herbarium, from the Wailau trail, Molokai. The veins leave the costae at an angle much wider than do those of *Polypodium Rockii*. The paleae of the latter are darker, but this difference may not be constant. The specimen of *Polypodium Rockii* shows no "surculi."

⁷ Philip. Journ. Sci. 9 (1914) Bot. 440.



10 CABLES 5 0 SEA MILE

PALMYRA ISLAND

SOUNDINGS IN FATHOMS

1913

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LONG. W. $162^{\circ}11'29''$